

UNITED STATES PATENT APPLICATION

FOR

A TEAR-BACK DRINK-THROUGH LID

FOR A BEVERAGE CONTAINER

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**CROSS-REFERENCES TO RELATED APPLICATIONS**

[001] Applicants claim the benefit under 35 U.S.C. § 119(e) based on U.S. Provisional Application Serial No. 60/460,324, filed April 3, 2003, and U.S. Provisional Application Serial No. 60/466,150, filed April 28, 2003, in the U.S. Patent and Trademark Office, the contents of both of which are relied upon and incorporated herein by reference.

**DESCRIPTION OF THE INVENTION**

[002] The present invention is directed to a tear-back drink-through lid for a beverage container, such as a cup. More particularly, the present invention relates to a lid that includes a tear-back portion that is capable of being opened and pivoted about a hinge. The tear-back portion may be latched into the opened position by using a locking or latch mechanism including a raised protrusion that engages with a recess. Side walls of both the raised protrusion and the recess include latching members that engage with each other to latch the tear-back portion in the open position. The raised protrusion may include a flexural region to aid in latching the tear-back portion in the open position. The lid may also include a drain groove to allow liquid collected in an indented rim around the periphery of the lid to drain back through the opening formed in the lid into the container. The tear-back portion may be unlatched and re-closed. Once closed, the tear-back portion prevents the contents of the beverage container from being spilled.

[003] A large number of prior attempts have been made to produce lids for disposable beverage containers, as would be used for beverages such as coffee

and soft drinks. Such drinks are frequently purchased at fast food establishments, convenience stores, or gas stations, and are often consumed in an automobile.

[004] The present invention is directed to a lid for use on a drinking container. The lid is capable of being releasably, sealably engaged with a top end of the container. The lid includes a tear-back portion. The lid includes a raised protrusion extending from an upper surface of the tear-back portion. At least two opposite side walls of the raised protrusion each includes a first latching member. The lid includes a first recess formed in a top wall of the lid radially inward from the tear-back portion. At least two opposing side walls of the recess each includes a second latching member. The tear-back portion is capable of being latched in an open position by inserting the raised protrusion within the first recess so that the first latching members are pushed past the second latching members to engage the second latching members.

[005] Another embodiment of the invention is directed to a lid having a top wall and an annular mounting portion surrounding a periphery of the top wall for sealably engaging the beverage container. The mounting portion includes a downwardly extending annular skirt. The lid includes a tear-back portion extending from a lower edge of the annular skirt to a hinge formed in a medial portion of the lid. A raised protrusion extends from an upper surface of the tear-back portion. At least two opposite side walls of the raised protrusion each includes a first latching member. A first recess is formed in the top wall of the lid radially inward from the hinge. At least two opposing side walls of the recess each includes a second latching member.

[006] The tear-back portion may be displaced from the lid and pivoted about the hinge to form an opening in the lid so that the raised protrusion is received within the first recess. The first latching members are pushed past the second latching members to engage the second latching members to retain the tear-back portion of the lid in an open position.

[007] In one embodiment, the raised protrusion includes a flexural region. In one embodiment, the flexural region is provided by an indentation formed in the raised protrusion.

[008] In another embodiment, the lid includes an indented rim. The top wall includes the indented rim radially inward of the mounting portion and formed around at least a portion of a circumference of the lid. The lid also includes at least one drain groove. Liquid is capable of draining from the indented rim through the at least one drain groove through the opening formed in the lid into the container.

[009] In yet another embodiment, the lid includes at least one plurality of corrugations formed in the top wall spaced from at least one side of the raised protrusion, an indented rim, and at least one drain groove. A first end of the drain groove is connected with the indented rim and a second end of the drain groove is connected with at least one corrugation of the at least one plurality of corrugations. Liquid is capable of draining from the indented rim through the drain groove through the at least one corrugation through the opening formed in the lid into the container.

[010] In another embodiment, the lid includes a second plurality of corrugations formed in the top wall, wherein each plurality of corrugations are spaced from opposite sides of the raised protrusion. The lid also includes an

indented rim and a second drain groove. A first end of the second drain groove is connected with the indented rim and a second end of the second drain groove is connected with at least one corrugation of the second plurality of corrugations. Liquid is capable of draining from the indented rim through each drain groove through its respective at least one corrugation through the opening formed in the lid into the container.

[011] In one embodiment, the lid includes a flange extending from the lower edge of the skirt away from the container on the tear-back portion to provide a gripping surface for a user to grasp and pull in order to tear open the tear-back portion. In another embodiment, the lid includes a pair of cuts formed in the skirt on both sides of the flange. The pair of cuts may comprise notches or score lines.

[012] In another embodiment, the lid includes a second recess formed in the top wall radially inward from the first recess. The second recess is capable of receiving the mounting portion when the tear-back portion is in the open position.

[013] The present invention is also directed to a lid having a top wall, an annular mounting portion, an indented rim, a tear-back portion, and at least one drain groove. The mounting portion surrounds a periphery of the top wall for sealably engaging the beverage container and includes a downwardly extending annular skirt. The top wall includes the indented rim radially inward from the mounting portion and formed around at least a portion of a circumference of the lid. The tear-back portion extends from a lower edge of the annular skirt to a hinge formed in a medial portion of the lid. The tear-back portion may be displaced from the lid and pivoted about the hinge to form an opening in the lid. Liquid is capable of

draining from the indented rim through the drain groove through the formed opening into the container.

[014] The present invention is also directed to a method of retaining a tear-back portion of a lid in an open position. The lid is capable of being releasably, sealably engaged with a top end of the container. The lid includes a tear-back portion capable of pivoting about a hinge formed in a medial portion of the lid. The lid includes a raised protrusion extending from an upper surface of the tear-back portion. At least two opposite side walls of the raised protrusion each includes a first latching member. The lid includes a first recess formed in a top wall of the lid radially inward from the hinge. At least two opposing side walls of the first recess each includes a second latching member.

[015] The method comprises tearing the tear-back portion along side edges of the tear-back portion to pivot the tear-back portion about the hinge to open the tear-back portion to form an opening in the lid. The method further comprises inserting the raised protrusion within the first recess. The method further comprises retaining the tear-back portion of the lid in the open position by pushing the first latching members past the second latching members to engage the second latching members.

[016] The present invention is also directed to a method of draining liquid from an indented rim of a lid into a container. The lid includes a top wall; an annular mounting portion surrounding a periphery of the top wall for sealably engaging the beverage container; the indented rim, wherein the top wall includes the indented rim radially inward from the mounting portion and formed around at least a portion of a

circumference of the lid; a tear-back portion, wherein the tear-back portion may be displaced from the lid to form an opening in the lid; and at least a one drain groove. The method comprises draining the liquid from the indented rim through the at least one drain groove through the opening formed in the lid into the container.

[017] In one embodiment, the lid includes a second drain groove, and the method further comprises draining the liquid from the indented rim through at least one of the drain grooves.

[018] It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only and are not restrictive of the invention, as claimed.

[019] The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate several embodiments of the invention and together with the description, serve to explain the principles of the invention.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

[020] FIG. 1 is a perspective view of one embodiment of a lid of the present invention, positioned on a beverage container;

[021] FIG. 2 is a perspective view of the lid of FIG. 1, positioned on a beverage container, when a tear-back portion is in an open position;

[022] FIG. 3 is a top view of the lid of FIG. 1;

[023] FIG. 4 is a side view of the lid of FIG. 1;

[024] FIG. 5 is an enlarged partial side view of a portion of the lid of FIG. 1;

[025] FIG. 6 is another enlarged partial side view of a portion of the lid of FIG. 1;

[026] FIG. 7 is a sectional view along the line VII-VII in FIG. 3;

[027] FIG. 8 is a sectional view along the line VIII-VIII in FIG. 3;

[028] FIG. 9 is a view of the engagement of a raised protrusion and a recess of the lid of FIG. 1; and

[029] FIG. 10 is an enlarged partial view of the lid of FIG. 3, illustrating a drain groove.

### **DESCRIPTION OF THE EMBODIMENTS**

[030] Reference will now be made in detail to the present embodiments of the invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers will be used throughout the drawings to refer to the same or like parts. Applicants incorporate U.S. Patent Nos. 5,947,323 and 6,505,753, both issued to Freek et al., herein by reference.

[031] FIGS. 1-10 illustrate one embodiment of a lid of the present invention. As shown in FIGS. 1 and 2, the present invention may be utilized with a cylindrical beverage container 10. The container 10 includes an open top end 12, a closed bottom end 14, and a surrounding side wall 16 therebetween. The open top end 12 is defined by an annular rim or lip 18 (see FIG. 2) of the container 10. The container 10 used may be made in a variety of shapes and sizes which may correspond to different shapes and sizes of lids of the present invention. More particularly, the annular rim 18 generally has a predetermined dimension or diameter that is coordinated with the dimension or diameter of the lid 20, as described below. The beverage container 10 may be comprised of a variety of materials, including, but not limited to, a plastic material, Styrofoam, or a paper material.



[032] The lid 20 is adapted for releasably sealably engaging with the top end 12 of the beverage container 10. Referring to FIGS. 1-3, the illustrated lid 20 is generally circular in shape. The lid 20 may be comprised of any shape that corresponds to the top end 12 of the container 10. Similar to the container 10, the lid 20 may be made in a variety of sizes to accommodate a variety of differently sized containers 10. The lid 20 may also be designed to be used with different styles of containers 10. The lid 20 may be comprised of a variety of materials, including, but not limited to, plastic or composite material.

[033] Referring to FIGS. 1-6, the lid 20 includes at least a top wall 24 and an annular mounting portion 30 that surrounds a periphery of the top wall 24. The lid 20 is secured in place on the container 10 by the mounting portion 30 engaging the annular rim 18 of the container 10. The mounting portion 30 includes an annular, downwardly extending side wall or skirt 28 that forms the outer peripheral circumference of the lid 20, and an inner wall 29. The mounting portion 30 and its walls 28, 29 may include curved and/or planar areas, and/or may be smooth, as long as the mounting portion 30 is capable of engaging the annular rim 18 of the container 10.

[034] As shown in FIGS. 1-3, a portion 40 of the lid 20 may be torn back (hereafter "the tear-back portion 40") to provide an opening 34 (see FIG. 2) in the lid 20 to enable drinking from the container 10 without removal of the lid 20. The tear-back portion 40 comprises a portion of the top wall 24 and a portion of the mounting portion 30 of the lid 20. Of the top wall 24, the tear-back portion 40 may comprise a portion of a recessed portion 25 of the top wall 24. The tear-back portion 40

includes a plurality of side edges 42 and 44. The tear-back portion 40 also extends from a lower edge of the side wall 28 through an arcuate section of the mounting portion 30 to a trough or hinge 48 formed in a medial portion of the lid 20. The hinge 48 serves as a pivotal hinge axis for the tear-back portion 40 so that as the tear-back portion 40 is torn away from the remaining portion of the lid 20, the tear-back portion 40 will rotate away from the rim of the container 10 while pivoting about the hinge 48. The tear-back portion 40 may comprise any art recognized shape.

[035] As shown in FIGS. 1-5, a flange 50 may extend from the lower edge of the skirt 28 away from the container 10 on the tear-back portion 40 of the lid 20 to providing a gripping surface for a consumer to grasp and pull in order to tear open the tear-back portion 40. In order to facilitate tearing, a pair of cuts or notches 31 may be formed in the skirt 28 on either side of the flange 50 to provide a starting point for tearing open the tear-back portion 40. In another embodiment, a pair of score lines (not shown) may be formed in the skirt 28 on either side of the flange 50 to provide a starting point for tearing open the tear-back portion 40.

[036] As well known in the art, each side edge 42, 44 of the tear-back portion may be scored or slit, formed in a line that aligns with the direction of extrusion of the plastic material forming the lid, and/or formed of a weakened line of material. In one embodiment, each side edge 42, 44 is formed within a weakened area of the plastic material forming the lid, which is designated as a plurality of corrugations 54. The corrugations 54 may be formed in the top wall 24 spaced from one or both sides of a raised protrusion 60 (discussed below). While four corrugations are shown in each plurality of corrugations 54 in these FIGS., one of ordinary skill in the art should

appreciate that the number of corrugations may comprise any number of corrugations. The corrugations 54 may be provided to direct the tearing of the tear-back portion 40 in a predetermined manner and prevent accidental and random tear directions. As the tear-back portion 40 is torn open, portions of the side edges 42, 44 are formed within the corrugations 54, often just within the corrugations 54 relative to the juncture of the corrugations 54 and the smooth material area between the corrugations 54 and the raised protrusion 60. In one embodiment, the corrugations 54 are tilted toward each other so that the side edges 42, 44 of the tear-back portion 40 converge inwardly when formed.

[037] As shown in FIGS. 1, 3, and 7-9, after the tear-back portion 40 has been opened relative to the container 10, the lid 20 includes structure to enable the tear-back portion 40 to be locked or latched in an open position. The lid 20 includes a raised protrusion 60 extending from a top surface 41 of the tear-back portion 40. The lid 20 also includes a recess 70 positioned radially inward from the tear-back portion 40. The raised protrusion 60 is shaped such that when the tear-back portion 40 of the lid 20 is opened and pivoted about the hinge 48, the raised protrusion 60 is received within the recess 70 to retain the tear-back portion 40 in the open position.

[038] More particularly, as shown most clearly in FIGS. 7-9, the tear-back portion 40 may be latched in the open position by inserting the raised protrusion 60 into the recess 70 so that first latching members 62, 64 (see FIG. 8) formed in opposite side walls of the raised protrusion 60 engage with second latching members 72, 74 (see FIG. 7) formed in opposing side walls of the recess 70. In use, as shown in FIG. 9, the lid 20 is somewhat flexible so that, when the raised

protrusion 60 is inserted into the recess 70, the latching members 62, 64 are pushed past the corresponding latching members 74, 72. The tear-back portion 40 is then latched in the open position because each first latching member 62, 64 engages its respective second latching members 74, 72. To “unlatch” the tear-back portion 40, one exerts an upward force on the tear-back portion 40 (for example, by pulling upward on the flange 50) to enable the latching members 62, 64 to disengage the latching members 72, 74.

[039] In one embodiment, referring to FIGS. 8 and 9, a flexural region 61 is formed in an upper portion of the raised protrusion 60. As used herein, the term “flexural region” comprises a region of the upper portion of the raised protrusion 60 that has flexibility to allow the raised protrusion 60 to flex at its upper portion when pressure is applied to the raised protrusion 60. The flexural region 61 may be formed of any art recognized shape or structure that is capable of providing flexibility to the upper portion of the raised protrusion 60. For example, the flexural region 61 may be provided by an indentation in the upper portion of the raised protrusion 60 or a protrusion from the upper portion of the raised protrusion 60. The flexural region 61 may comprise an indentation having, for example, a notch shape, a V-shape, or a U-shape. As shown in FIG. 8, the flexural region 61 is provided by an indentation 66 having a notch or V-shape.

[040] More particularly, the flexural region 61 allows the raised protrusion 60 to flex, thereby allowing the latching members 62, 64 to be more easily pushed past the latching members 72, 74 to latch the tear-back portion 40 in the open position. Also, after the tear-back portion 40 is latched, the flexural region 61 provides

resistance so that the latching members 62, 64 are resisted from disengaging the latching members 72, 74. Upon unlatching of the tear-back portion 40, the flexural region 61 also allows the raised protrusion 60 and, in particular, its upper portion, to return substantially to its original configuration.

[041] As shown in FIGS. 1-3, a second recess 80 is also formed in the lid 20 radially inward from the recess 70. The second recess 80 is formed for receiving the mounting portion 30 of the lid 20 when the tear-back portion 40 is retained in its open position.

[042] Referring to FIGS. 1-3 and 10, in one embodiment, the lid 20 includes at least one drain groove 82 or a pair of drain grooves 82. The top wall 24 of the lid 20 may include an indented rim or plug 32 (see also FIGS. 4 and 6). The indented rim 32 is positioned radially inward from the mounting portion 30. The indented rim 32 may be formed around a portion of the circumference of the lid 20. The indented rim 32 serves as a primary seal to engage the inside surface of container 10 and is capable of collecting liquid to avoid spillage thereof. Each drain groove 82 may be provided so that any liquid that collects in the indented rim 32 may drain through the opening 34 formed in the lid 20 into the container 10. The drain groove 82 may comprise any structure or shape that is capable of allowing liquid to drain from the indented rim 32 back through the opening 34 into the container 10.

[043] As shown in FIGS. 1-3 and 10, at least one drain groove 82 connects with one or more corrugations of at least one plurality of corrugations 54 to drain liquid from the indented rim 32 through the opening 34 into the container 10. In one embodiment having a pair of drain grooves 82, each drain groove 82 connects with

one or more corrugations of each plurality of corrugations 54. A first end 84 of each drain groove 82 connects with the indented rim 32, while a second end 86 of each drain groove 82 connects with at least one corrugation 58 of each plurality of corrugations 54. In use, liquid may drain from the indented rim 32 through each drain groove 82 through its at least one corrugation 58 through the opening 34 formed in the lid 20 into the container 10.

[044] In use, after a beverage is poured into the beverage container 10, the lid 20 is snapped into place onto the container 10 to releasably, sealably engage the container 10 and the lid 20 by engaging the mounting portion 30 with the rim of the container 10. To drink from the container 10, the user grasps the flange 50 and then pulls to tear the lid material to form the tear-back portion 40. The side edges 42, 44 of the tear-back portion 40 are then formed through each pair of corrugations 54. The tear-back portion 40 is torn until the hinge 48 is reached. The tear-back portion 40 then pivots about the hinge 48.

[045] The tear-back portion 40 is pivoted so that its top surface 41 is folded over the top surface of the top wall 24 of the lid 20. The raised protrusion 60 of the tear-back portion 40 is then inserted into the recess 70 for latching engagement of the tear-back portion 40 in the open position. In particular, the tear-back portion 40 is latched in the open position by first latching members 62, 64 of the raised protrusion 60 being first pushed past and then engaging second latching members 72, 74 of the recess 70. As shown, first latching member 62 is pushed past and then engages second latching member 74, while first latching member 64 is pushed past and then engages second latching member 72. Once the tear-back portion 40 is

opened and, preferably when latched in the open position, the user drinks the beverage from the container 10 through the opening 34 formed in the lid 20.

[046] In one embodiment, the lid 20 includes a straw slot opening (not shown) that functions as a means for facilitating the insertion of a drinking straw (not shown) into the container 10 for withdrawing liquid by suction.

[047] At places where a user would buy a beverage in a cup, such as fast food establishments, gas stations, or convenience stores, the cups and lids may be stacked with a lid on each cup ("cup-on-lid stacking"), or by stacking a plurality of cups together and also stacking a plurality of lids together ("lid-on-lid stacking").

[048] Other embodiments of the invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and examples be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.